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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,140	05/03/2001	Hideyo Osanai	134.136	7450

7590

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EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/848,140

Applicant(s)

OSANA ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 8-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-7, drawn to a metal-ceramic circuit board, classified in class 174, subclass 256.
  - II. Claims 8-22, drawn to a method of manufacturing a metal-ceramic circuit board, classified in class 228, subclass 256.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, like reflowing a solid metal that has been replaced on a circuit board.

2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
3. During a telephone conversation with James Nilles on 9/3/02 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-7. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 8-22 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(j).

#### ***Drawings***

5. The drawings are objected to because a cross hatching as shown in figures 1-5 of a ceramic substrate does not right. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

6. The abstract of the disclosure is objected to because Applicant is selected Group I (claims 1-7), which is a product claimed, and the method claims is no longer belong in this application.

Correction is required. See MPEP § 608.01(b).

**Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. (U. S. Patent 6,175,084) in view of Ikeda et al. (U. S. Patent 6,040,039).

As to claims 1, 4-6, Saitoh discloses a metal-ceramic circuit board (10, column 3, line 50) as shown in figures 1-12 comprising

a base plate (1, column 4, line 57) of aluminum or aluminum alloy and a ceramic substrate board is made of a material selected from alumina, aluminum nitride and silicon nitride (claims 4-6) (2, column 3, lines 64-67, column 4, lines 1-5), wherein one surface of the ceramic substrate board is bonded directly to the base plate, and the base plate has a thickness not smaller than 1 mm (column 4, lines 64-65).

Saitoh does not disclose the metal base having a proof stress not higher than 320Mpa. Ikeda shows a metal base (4) of a metal-ceramic circuit board (14) having a proof stress not higher than 320Mpa.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a proof stress (bending strength) not higher than 320Mpa of a metal base as taught by Ikeda to employ the circuit board of Saitoh in order to provide a maximum deflection and anti breaking strengths of the metal base of the circuit board.

As to claim 2, Saitoh discloses the board as shown in figures 1-12 wherein the other surface of the ceramic substrate board has a metal conductive member (5B) for an electronic circuit.

As to claim 3, Saitoh discloses the board as shown in figures 1-12 wherein said conductive member (5B) is made of a material selected from copper, copper alloy, aluminum and aluminum alloy (column 6, lines 12-19).

As to claim 7, Saitoh discloses a power module (10) as shown in figures 1-12 comprising

a base plate (1) of aluminum or aluminum alloy,

a ceramic substrate board (2), and

a semiconductor tip (5A), wherein one surface of the ceramic substrate board is bonded directly to the base plate, said semiconductor tip is provided on the other surface of said ceramic substrate board and the base plate has a thickness not smaller than 1mm.

Saitoh does not disclose the metal base having a proof stress not higher than 320Mpa. Ikeda shows a metal base (4) of a metal-ceramic circuit board (14) having a proof stress not higher than 320Mpa.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a proof stress (bending strength) not higher than 320Mpa of a metal base as taught by Ikeda to employ the circuit board of Saitoh in order to provide a maximum deflection and anti breaking strengths of the metal base of the circuit board.

**Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chang, Sato et al., and Yamagata et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD  
September 26, 2002

*Albert W. Paladini 9-26-02*  
ALBERT W. PALADINI  
PRIMARY EXAMINER